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ABSTRACT

This study tested the hypothesis that category naming is more difficult than instance naming because it requires suppression of readily available instance names. In experiment 1, junior kindergarten and grade one children named pictures of single objects under two conditions: "own" name (i.e., instance or basic level) or "group" name (i.e., category or superordinate level). Names and reaction times were recorded. In experiment 2, comprehension of instance and category names was measured. First graders produced correct names more often than did kindergarten children, and instance naming was easier than category naming. A grade by task interaction indicated that kindergarten children found category naming particularly difficult. The junior kindergarteners also produced more instance intrusions in the category task than did older children, and their comprehension of category names was not as poor as their production. It is concluded that these and other effects were consistent with the suppression hypothesis and with several possible underlying mechanisms. (Author/RH)

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Toward a Developmental Model for Instance and Category Naming of Pictures

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This paper summarizes a poster session presented at the biennial meeting of the Society for Research in Child Development, April 1989, Kansas City, Missouri. We thank the London Board of Education for providing access to subjects for this research.

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Abstract

Superordinate category naming ability develops later than instance naming ability. This research tested the hypothesis that category naming is more difficult because it requires suppression of readily available instance names. In Experiment 1, junior kindergarten (JK) and grade one (G1) children named pictures of single objects under two conditions: "own" name (i.e., instance or basic level) or "group" names (i.e., category or superordinate). Names and reaction times were collected. In Experiment 2, comprehension of instance and category names was measured. G1s produced correct names more often than JKs, and instance naming was easier than category naming. A grade by task interaction indicated that JKs found category naming particularly difficult. JKs also produced more instance intrusions in the category task than older children, and their comprehension of category names was not as poor as their production. These and other effects were consistent with the suppression hypothesis and with several possible underlying mechanisms.

Toward a Developmental Model for Instance and Category Naming of Pictures

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Superordinate category naming ability develops later than instance naming ability (Anglin, 1977; Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976). A possible explanation for the additional difficulty of category naming is that young children have a limited capacity to suppress readily available instance name(s) in order to produce a category response. The suppression hypothesis is consistent with previous demonstrations that: (a) instance name intrusions contribute more to the difficulty of category naming for young children than for adults (Johnson & Clark, 1988), and (b) name uncertainty (number of different names across Ss for a given picture) decreases naming accuracy and slows naming reaction times for both children and adults (Johnson & Clark, 1988; Lachman, 1973; Paivio, Clark, Digdon, & Bons, 1989).

Two experiments tested implications of the suppression hypothesis using single-object pictures of 8 instances from each of 12 superordinate categories. Each experiment involved 64 children, half in junior kindergarten (JK) and half in grade 1 (G1). In Experiment 1 children were instructed to produce instance names for half the items and category names for the other half. Experiment 2 examined comprehension in a yes-no matching task. Children saw all items twice, once paired with a correct or incorrect instance name and once with a correct or incorrect category name. Responses and reaction times were measured.

Consistent with prior research, JKs had particular difficulty with category name production (Figure 1). A number of findings supported the proposed explanation (i.e., inadequate suppression of instance names): (a) JKs generated significantly more instance name intrusions than G1s in the category naming task (Figure 2; see also Johnson & Clark, 1988); (b) JKs generated

instance names almost as quickly in category naming as in instance naming, whereas G1 instance instrusions were much slower (Table 1); (c) within grades, instance name intrusions were a better (negative) predictor of correct category naming than either omissions or other responses (Table 2); (d) across items, JK category production correlated negatively with instance name familiarity, whereas G1 category production correlated positively with category name familiarity (Table 2). Experiment 2 demonstrated that both groups produced many fewer category names than they could comprehend (Figure 3), but this was particularly true for JKs. Specifically, JK's category name production was only 11% of category name comprehension, whereas G1 production was 45% of comprehension. Instance name production was 76% and 81% of comprehension for JKs and G1s, respectively.

Although caution is needed in interpretation of the findings, especially those based on very low levels of performance, the results are consistent with some form of the suppression hypothesis. That is, during category naming, younger children appear to be particularly vulnerable to competition from strongly-activated instance names. It may be that young children have limited ability to suppress or inhibit these competing responses. Alternatively, young children may be unable to direct spreading activation to a specific class of responses, i.e., category names. We present a preliminary model that illustrates competition among various name representations during instance and category naming. Future research should be directed toward specification of the underlying interference mechanism and delineation of its possible role in various language behaviors.

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TABLE 1. MEAN RTs (sec)

	GRADE	
	JK	G1
INSTANCE TASK		
INS NAMES	2.00	1.89
CATEGORY TASK		
INS NAMES	2.50	4.57
CTG NAMES	3.34*	3.42

*BASED ON ONLY 25 JKs AND FEW ITEMS.

TABLE 2. CORRELATIONS (p) WITH CATEGORY PRODUCTION

ACROSS SUBJECTS (32)

	GRADE	
RESPONSE TYPE	JK	G1
INSTANCE	-.42(.01)	-.71(.00)
OTHER	-.21(.13)	-.29(.06)
OMISSION	+.10(.29)	-.43(.01)

ACROSS ITEMS (96)

WORD FAMILIARITY	JK	G1
INSTANCE	-.30(.00)	-.10(.16)
CATEGORY	-.12(.12)	+.19(.03)

FIGURE 1. PRODUCTION

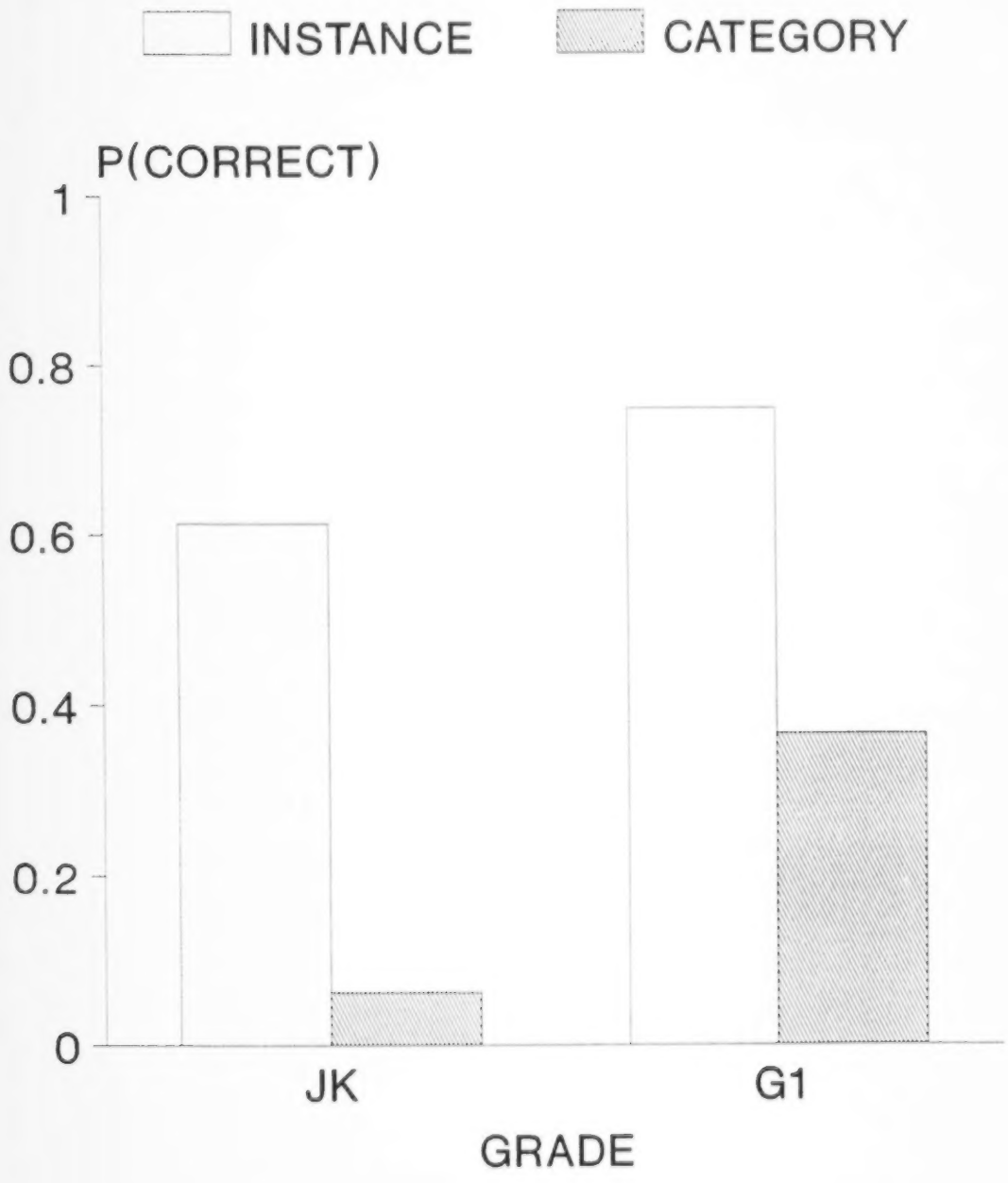


FIGURE 2. RESPONSE TYPES

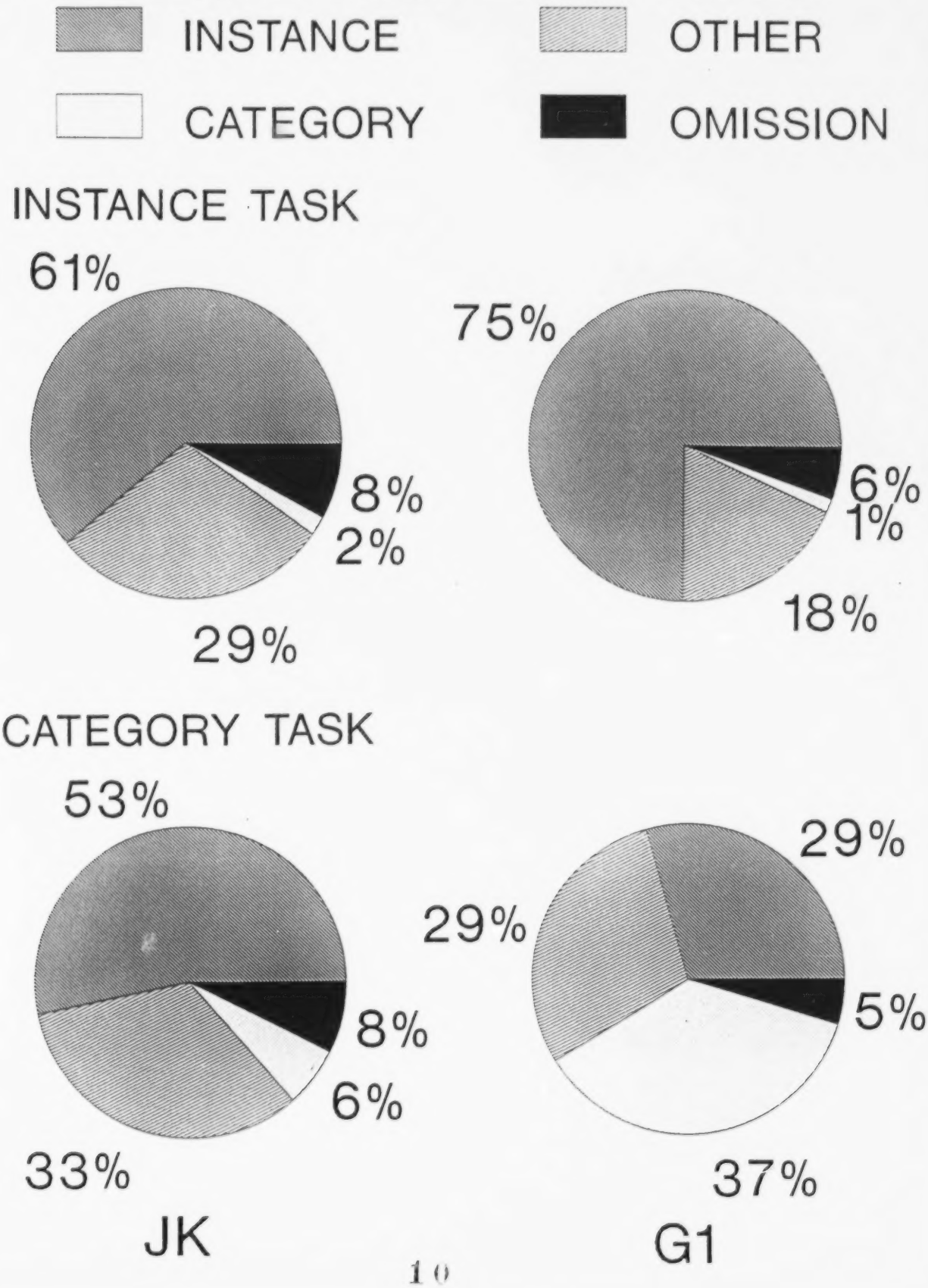
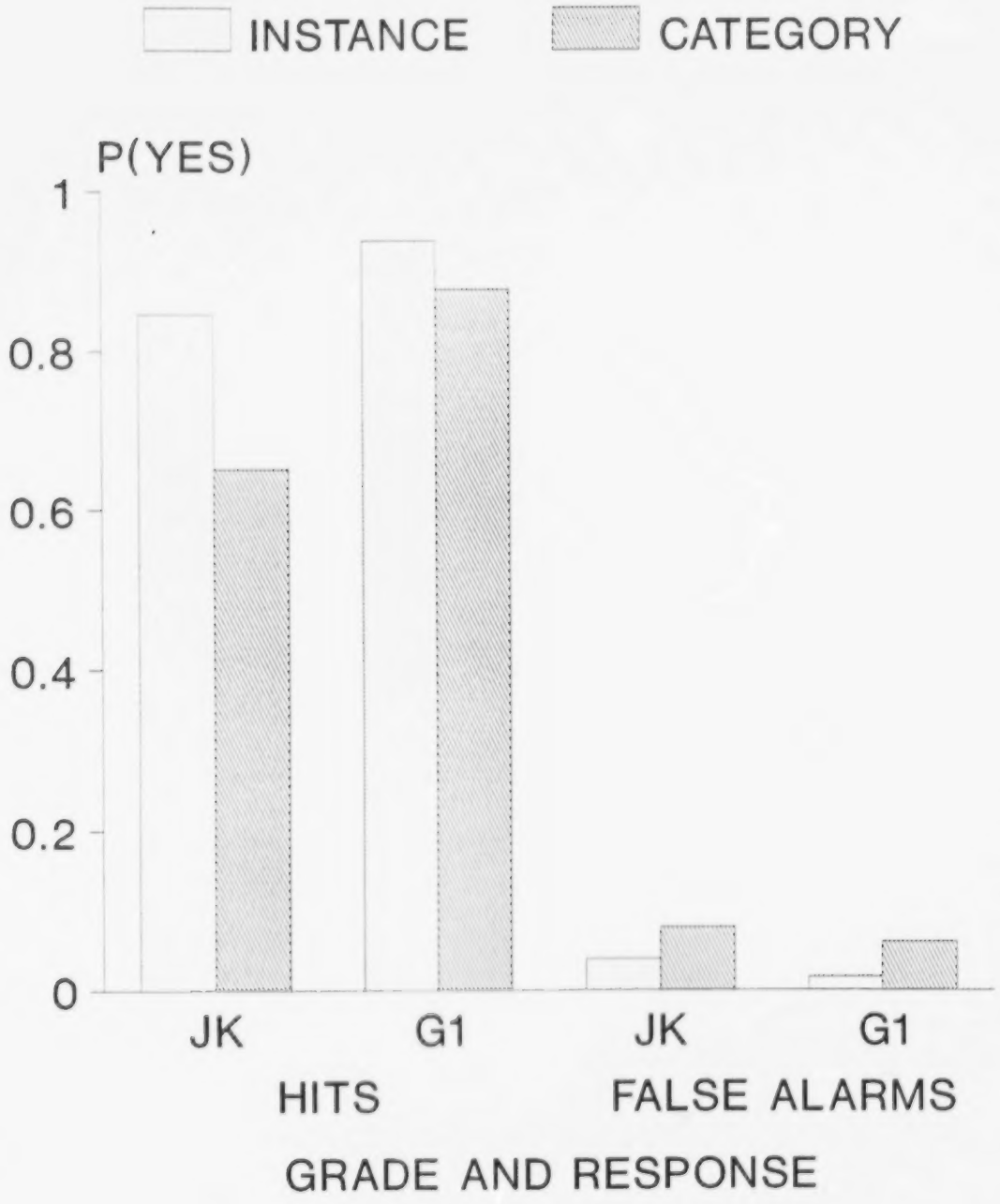


FIGURE 3. COMPREHENSION



A MODEL OF INSTANCE AND CATEGORY NAMING

OBJECT
REPRESENTATIONS

NAMING TASK
INSTRUCTIONS

SPOKEN NAME
(COMPR.)

CAT

KITTEN

ANIMAL

PET

VERBAL
REPRESENTATIONS

RESPONSE/NAME

HYPOTHESIZED FINAL ACTIVATION LEVEL OF NAME REPRESENTATIONS